Determinants of environmental management in the Red Sea Hotels: Personal and Organizational Values and Contextual Variables

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Abstract
What motivates firms to adopt environmental management practices is one of the most significant aspects in the contemporary academic debate in which the review of the existing literature yields, with an obvious contextual bias towards developed world, contested theories and inconclusive findings. Providing a unique model that brings together the individual and organizational levels of analysis on firms' adoption of environmental management practices, this study aims to provide a new insight from the context of developing world. Data from 158 Red Sea hotels reveal two identifiable dimensions of environmental management- planning and organization, and operations- that can be explained as originating from different values. While organizational altruism is a powerful predictor of both two dimensions, managers' personal values and organizational competitive orientation are only relevant to environmental operations. The evidence also indicates that contextual variables such as chain affiliation, hotel star rating and size are important to explain hotels' environmental management behaviors.

What makes some hotels more environmentally proactive than others? We explain this through a conceptual model test with Red Sea hotels. The study first outlines a range of environmental management practices (EMPs), broken down into organizational and operational, which the literature has reported widely since the early 1990s, as a way of introducing the challenge facing many academics and donors of how to explain the reasons why some firms choose to adopt them, while many others do not. It then introduces three theories to explain the behavior of firms towards environmental engagement, going beyond the coarse early assumptions that cost cuttings would be the single measure to provide a business case that firms would respond to.

Environmental management practices

Environmental management is a broad term, covering a wide range of practices aimed at reducing the negative environmental impacts generated by a firm's products and services. These practices can be generally classified into two categories: "organizational or software" and "operational or hardware" (Alvarez Gil et al., 2001; Gonzalez-Benito and Gonzalez-Benito, 2006; Saha and Darton, 2005).

Organizational practices are relevant to the development and implementation of an environmental management system (EMS); a system that helps companies identify and manage environmental issues and consequences related to their operations in a holistic and consistent way (IH&RA, UNEP and EUHOFA, 2001). The enforcement of environmental regulations is a highly complex issue for the hotel sector and particularly in developing countries, which is highly fragmented and mainly made up of small to medium sized independent operators (Kasim and Scarlat, 2007; Rivera, 2002). For this reason EMSs have been recognized as viable voluntary mechanisms of managing the various environmental issues associated with hotel operations that do not typically fall under the control of any one monitoring agency (WTTC et al. 2002).

EMSs originate in manufacturing with international and European environmental standards arising as extensions of quality management procedures (Font and Buckley, 2001) from which tourism specific adaptations have taken place (Green Globe 21 during the 1990s being the most obvious). They reflect the extent to which a company has modified its systems and structures to accommodate an environmental program, which defines an environmental policy, establishes environmental objectives and targets, evaluates the firm's environmental performance in a regular basis, delegates environmental responsibilities and provides environmental training for employees. Such practices themselves do not directly

lessen the company's environmental impact, but they set the mechanism to improve environmental performance in a systematized and structured manner (Gonzalez-Benito and Gonzalez-Benito, 2006).

Unlike organizational practices, operational practices can directly improve the environmental performance of the company since they involve modifications in both the production and operations systems. While organizational practices are similar across industries, operational practices are industry-specific (Alvarez Gil et al., 2001; Carmon-Moreno et al., 2004). Academics suggest that cutting operating costs and minimizing resource consumption is the most convincing strategy to engage hotel management (see: Ayuso, 2006; Bohdanowicz, 2006; Kasim, 2007; Kirk, 1995; Tzenchentke et al., 2004). Opportunities for cutting operational costs revolve around four areas: water and wastewater management, energy management, solid waste reduction and management and green purchasing (IH&RA, UNEP and EUHOFA, 2001). Water accounts for up to 15% of total utility bills in most hotels and almost 95% of fresh water is released as sewage (Dodds and ITP, 2005), often without proper treatment. Therefore, water management is becoming increasingly important for hoteliers as it can reduce not only the total cost of actual water consumption, but also the cost of wastewater treatment. For example, Sandals Negril Beach Resort & Spa in Jamaica uses low-flush toilets and urinals that use only 5.7 liters (1.5 gallons) of water per flush, aerators and low-flow devices on tapes, water-saving showerheads with a maximum flow of 9.5 liters (2.5 gallons) per minute, and ground care water-saving techniques to reduce water loss from evaporation. In the three years from 1998-2000, the hotel was able to reduce total water consumption per night by 28.6% (Sweeting and Sweeting, 2003).

Energy savings equate to cost savings. Energy efficient equipment and practices reduce hotel energy consumption by 20% or more (ORHMA, 2008). Many hotel corporations recognize these opportunities and implement energy-efficient projects in lighting, space heating and cooling systems. For example, the 2001 Energy Star® Award winner Hilton Hotels Corporation was able to save nearly US$2.5 million in energy costs. This was achieved by saving of nearly 43 million kWh of electricity and the prevention of 65 million pounds of CO_2 emissions in 2000 alone, the equivalent of removing 6,450 cars from the road (www.energystar.gov).

Waste disposal costs money. Most hotels pay twice for the waste they generate - first for product packaging (up to 35 percent of total waste by volume and 15 percent by weight can be packaging) and then for waste disposal (Dodds and ITP, 2005). Costs are rising rapidly for waste collection, hauling and tipping fees (Cummings, 1997). Hotels are well-placed to establish recycling facilities that can be used by others in the local community. The Park Inn Hotel Berlin (formerly the Forum Hotel), for example, not only handles its own waste, but also that of eight other tenants in the building including cafes and fast food outlets, for a charge based on the quantity. The hotel cut its own waste from a total of 840 tones in 1992 to 85 in 1998 (Dodds and ITP, 2005).

Product procurement policies can also impact the levels of waste a hotel generates, and hence the costs associated through waste disposal. As major consumers of goods and services, hotels have strong influence on the supply chain and can, therefore, encourage suppliers to follow environmentally friendly standards. Thus, establishing a supply environmental management process is a necessity for those hotels opting to improve their environmental performance (da Cunha Lemos and Giacomucci, 2002). Scandic hotels provide a unique example. The company decided

to involve their supplier in its environmental program, driving them to source products with low environmental impact. New suppliers were asked to document their environmental policies and to sign the Scandic Supplier Declaration. In many cases Scandic was able to influence suppliers' environmental behavior. To reduce their environmental impacts, all hotels are encouraged to offer KRAV certified breakfasts (Bohdanowicz et al., 2004).

Despite the growing popularity of EMPs in the hotel industry, the nature and extent of such practices is, however, unknown in the Red Sea hotel sector. There is a need for background information on EMPs and more importantly on the factors influencing their adoption. Such background will help practitioners and policy makers design and develop appropriate programs aimed at maintaining and/or improving the environmental quality of the region and thereby making the industry more internationally competitive.

Factors influencing the adoption of EMPs

Despite research attempts devoted to theory building with regards to the factors influencing firms' environmental behaviors (e.g. Alvarez Gil et al., 2001; Andersson and Bateman, 2000; Henriques and Sadorsky, 1996, 1999; Hoffman, 1999; Moon and de Leon, 2007; Rivera, 2002; 2004; Sharma, 2000) to date theories are contested and empirical findings are inconclusive. Traditionally, one theoretical approach or a single level of analysis has been used to explain firms' adoption of EMPs, providing an incomplete picture. Interaction between multiple theoretical perspectives and various levels of analyses is, however, argued to be essential to provide a better explanation of such a complex phenomenon (Bansal and Roth, 2000). Although multiple studies had addressed this issue in manufacturing, few examine tourism businesses (see however Bohdanowicz, 2006, Chan and Wong, 2006). This study seeks, therefore, to contribute

to the existing literature by developing a multilevel theoretical framework to explore determinants of EMPs in hotels, operating at the individual and organizational levels drawing on theories from psychology, sociology, organizational studies and ethics.

The analysis starts at the individual-level arguing that EMPs are not only driven by organizational-level determinants but also they may be outcomes of managers' environmental paradigms or belief systems. This is consistent with theories that emphasized the importance of organizational actors holding eco-centric values to be able to help their companies in the move towards sustainability (e.g. Gladwin et al., 1995; Shrivastava, 1995a, Stead and Stead, 1992; Starik and Rands, 1995). Empirical research has shown also that eco-oriented managers may play a role in corporate greening, although more empirical analyses are still needed in this area. Andersson and Bateman (2000), for example, have demonstrated the critical role that a "strong environmental paradigm" plays in a firm's decision to adopt EMPs. Applying the Ajzen theory of planned behavior, Cordano and Frieze (2000) and Flannery and May (2000) have also identified managers' attitudes as an important antecedent to preferences for source reduction activity. In this light, hotel businesses are expected to vary in terms of their level of environmental commitment according to how strongly their executives embrace eco-centric values inherent in their beliefs systems.

At the organizational level, the framework explores the role of organizational value orientations. Understanding the prevailing environmental values embedded in a hotel's environmental paradigm can provide important insights for the development of EMPs (Banerjee et al., 2003, Bansal, 2003; Berkhout and Rowlands, 2007). A distinction here is made between three potential orientations of environmental responsibility in business: competitiveness, legitimacy and altruism. Academics supporting resource-based theory justify the adoption of proactive EMPs as a firm's

desire to maximize returns and obtain competitive advantages (e.g. Hart, 1995; Hart and Ahuja, 1996; Miles and Covin, 2000; Porter and van der Linde, 1995; Sharma and Vredenburg, 1998; Shrivastava, 1995b; Russo and Fouts, 1997), through cost reduction, sales increases, new market opportunities and enhanced company image. Competitiveness may thus be helpful in explaining part of EMPs in the sampled hotels.

An alternative approach to understand the determinants of EMPs is legitimacy. From the perspectives of institutional and stakeholder theories, firms implement EMPs in order to comply with regulations and broadly accepted norms and values in the society in which they operate and thus remain legitimate in the eyes of their constituencies (Bansal and Roth, 2000; Fineman and Clarke, 1996; Henriques and Sadorsky, 1999; Hoffman, 1999; Madsen and Ulhoi, 2001; Salmi, 2008). The company that fails to conform to these regulations or norms runs the risk of losing its "license to operate" (Howard-Grenville et al., 2008).

Finally, altruism stems from the argument that some firms reduce environmental impacts because they see this as "the right thing to do" (Bansal and Roth, 2000; Berkhout and Rowlands, 2007; Drumwright, 1994). Some business and society scholars have argued that firms have a responsibility towards society that goes well beyond simply maximizing the wealth of shareholders (significant examples include: Carroll, 1995; Frederick, 1994; Swanson, 1999). Previous research has shown that these value dimensions are overlapping (Bansal, 2003; Berkhout and Rowlands, 2007) and thus they are discussed separately here for analytical purposes only.

We have previously adopted this framework to explore determinates of environmental responsibility in marketing behaviors of the management companies operating in the Red Sea (El Dief and Font, 2010). The replication of the analysis on

another sample of the industry's executives, with different responsibilities here intends to reach a stronger conclusion about the nature of the relationships identified in our previous research using a different unit of analysis, i.e. the individual hotel. Independent variables consist of the personal environmental values (PEV) and organizational environmental values (OEV), with the dependent variables being the hotel's environmental management practices (EMPs), and personal and contextual variables being included for control purposes. The instrument design is explained below while the actual items used are available from the authors for researchers to test in their own locations.

Instrument design

PEV were measured by borrowing ten-items from the New Ecological Paradigm "NEP" Scale developed by Dunlap et al., (2000), to measure how strongly the respondents endorse eco-centric values in their belief systems. The NEP is regarded as the benchmark for measuring peoples' environmental attitudes, beliefs and values and thus has been widely tested in different cultures. Nonetheless, this is one of its first applications in an Arabic context.

OEV were measured with ten statements covering the three distinctive orientations previously mentioned as the study's framework: altruism, competitiveness and legitimacy, using a five-point Likert scale. These statements are based on previous organizational greening literature (e.g. Banerjee et al., 2003; Bansal and Roth, 2000; Baker and Sinkula, 2005; Gonzalez-Benito and Gonzalez-Benito 2005a, b; Karna et al., 2003) and modified to suit the hotel context.

At the time of this study there was no standard set of EMP for the Red Sea hotels. Accordingly, we used statements related to environmental management already employed in the general organizational greening literature (e.g. Aragon-

Correa, 1998; Henriques and Sadorsky, 1999, Sharma, 2000), as well as a number of aspects specifically related to hotels (e.g. Alvarez Gil et al., 2001; Carmona-Moreno et al., 2004; Dodds and ITP, 2005; Gonzalez and Leon, 2001; Kirk, 1996; IHA et al., 1995). We chose items so as to provide a balanced combination of various aspects of environmental management. Based on the literature, the 12 practices included in this scale were divided into two constructs: planning and organizational practices, and operational practices. Hotel chief engineers evaluated each on a 5-point Likert scale as a function of the hotel's degree of commitment to each practice (1 = minimum commitment level and 5 = maximum commitment level).

We also included several control variables aiming to determine the unique contribution of PEV and OEV, describe the participants, and assess generizability. Demographic variables are as follows. Managers' *age* is included the era in which one is brought up is arguably central to shaping environmental values, attitude and behaviors (Fryxell and Lo, 2003; Rivera and de Leon, 2005). Manager's *industry tenure and education* were included as a control variable due to its relevance to corporate strategic change (Wiersema and Bantel, 1993).

Contextual variables are as follows: *Chain affiliation* measured as a binary variable differentiates between local hotels (both independent and chain hotels) and international chain hotels international chain hotels. The literature suggests that international chain hotels are more likely to implement environmental strategies due to the effects of economies of scale, marketing experience in markets where green differentiation is possible, and the possible transfer of environmental knowledge among affiliates (e.g. Alvarez Gil et al., 2001; Ayuso, 2006; Bohdanowicz, 2006; Gonzalez and Leon, 2001).

Hotel size measured as the number of hotel rooms, included to control the effect of scale economies on the implementation of EMPs, the advantages resulting from the superior availability of resources in and the higher visibility of large companies. There is a great deal of empirical evidence supporting the relevance of firm size matters in the environmental debate, with larger firms being more proactive (e.g. Alvarez Gil et al., 2001; Chan, 2005; Claver-Cortes et al., 2007; Gonzalez-Benito and Gonzalez-Benito, 2006; McNamara and Gibson, 2008; Moon and de Leon, 2007; Mori and Welch, 2008).

Star rating formalized as a binary variable distinguishing between five stars and four and three stars together. Similar to size and degree of internationalization, the higher the grade that the hotel has, the greater the volume of assets and employees per room it has and hence its ability to adopt BER initiatives (Alvarez Gil, et al. 2001; Rivera, 2002).

The priority target market was included because the literature suggests that customers, particularly Western European, are more likely to influence companies' environmental behavior (Ayuso, 2006; El Dief and Font, 2010). We introduced it as a binary variable distinguishing West European tourist and others.

Methodology

The research that forms the basis of this study was conducted in Egypt, a country that shares most of the environmental problems of developing countries (see Anwar, 2003). We choose the Red Sea region as the study setting, as tourism is growing fast, there is a range of international and domestic chains, the number of hotels is large and competition is fierce (Daher, 2007). The region's hotel room capacity can reflect the industry's massive growth and the potential negative impact the natural environment. According to the Egyptian Hotel Association (EHA, 2007/08), at the time of the

primary research there were 491 hotels operating with almost 109,000 rooms (60 % of the country's total room capacity).

Sample and data collection

The target population was individual hotels rather than their management companies because, as Gonzalez and Leon (2001, p: 182) explained, EMPs do not tend be homogeneous across individual units of a hotel chain, and firms act with discretion in expanding such practices across single units. The sample of 3, 4 and 5 star hotels represent 74% of the establishments in the region (EHA, 2007/08) and are relatively homogeneous. Their size and management structure warrant expecting they can manage environmental aspects (as found in Alvarez Gil et al., 2001; Carmona-Moreno et., 2004; Erdogan and Baris, 2007; Molina-Azorın et al., 2009; Rodriguez and Cruz, 2007). This study targets the entire population (264) in the 2005-6 Egyptian Hotel Guide, using a self completed questionnaire for the hotel's chief engineer. The backgrounds of the targeted and participant hotels are summarized in Table 1.

Insert Table 1 about here

A pilot study identified chief engineers in Red Sea hotels as the environmental management "reality definers" (Fineman, 1997). Environment management, as understood in these hotels, is usually an additional responsibility for the engineering and maintenance departments.

The survey instrument was tested with in depth interviews with both Egyptian academics in hospitality and corporate social responsibility and hoteliers. The majority of statements included in the questionnaires were borrowed from

contexts other than tourism and applied noticeably to Western societies. Statements validated in those contexts may or may be not appropriate for tourism or for Egyptian managers. It was, therefore, essential to test the applicability of these items within both the hotel sector and the Egyptian organisational context. The questionnaires were translated from English into Arabic by the researcher and with assistance from an Egyptian academic teaching in a UK university, testing meaning accuracy in the translation through double translation English-Arabic-English. The two language versions were compared and simple adjustments were made to the Arabic version. The refined questionnaires were then subjected again to a second stage of pilots with three Egyptian academics and seven target respondents (five chief engineers from the same chain representing hotels of different categories, and two marketing directors from two different chains). Some statements were again modified and some were deleted to shorten the questionnaires, based on suggestions from respondents, strengthening the content validity of the study (Johnson and Christensen, 2004).

From these pilots we learnt that: 1) the summer season (May until August) was regarded as the most suitable time for administering the questionnaires, as being the low season in the Red Sea due to the hot weather; 2) data would be collected by a variety of methods to get representative samples for the study population; and 3) data collectors would be needed to help administering the questionnaires. Accordingly, five persons were selected, trained and instructed to deliver and collect the questionnaires in a systematic way.

We surveyed these environmental engineers in three ways, increasing the cost per response at each stage (Roberts, 2007): mail, telephone, and face to face, between May and August 2006. The mail survey response rate of 18 % was judged to be insufficient but typical (see for example: Tuncalp, 1988; Mostafa, 2007; Parnell and

Hatem, 1999). Telephone follow-ups increased response rate to 33 %. Doorstep follow ups (visiting each property in person to deliver questionnaires and agree a time to pick them up) proved to be more effective than posted or telephone surveys at persuading would-be respondents to participate, pushing the response rate significantly from to 65.55 %. After rejecting 13 poor completions, we had 158 valid responses (60.5%).

We used star ratings (three, four or five-star) and chain affiliation (independent, local chain or international chain) to check the non-response bias. Yet with χ^2 equals 2.27 (p-value > 0.10), the proportions of star ratings among non-participant and participant hotels were not statistically significant. The chi-square test of the proportions of the hotel chain affiliations between respondent and non–respondent hotels was a χ^2 of 2.15 and p-value > 0.01. Thus, non-response bias, in terms of star rating and/or chain affiliation, was probably not a problem in this survey. We acknowledge that in surveys of this type there is a high likelihood of PEV bias, which could not be measured with this quantitative study, but was the subject of further qualitative explanatory research to be published shortly. We also acknowledge that the drop off and pick up method would have pressurized some hotel staff to respond- however comparing results between the responses achieved door to door with those by mail and telephone, there were no alarming differences.

Analysis

PEV independent variables were tested through the New Ecological paradigm with Principal Components Analyses (PCA) and orthogonal varimax rotation. This provided two factors accounting for 54.37% of the total variance explained (see Field, 2005). The first factor labeled *Anti-New Ecological Paradigm* obtained an eigenvalue of 4.0, explaining 40.04% of the total variance. The agreement with the items loaded

on this factor reflects strong anthropocentric beliefs of respondents. The second factor that achieved an eigenvalue of 1.43 before rotation, explaining 14.33% of the variance, was labeled *Limits to Growth Paradigm*. The agreement with the two items loaded on this factor indicates pro-NEP beliefs. Both factors exhibited acceptable reliabilities, with α values of 0.847 and 0.61 respectively (see Table 2). For ease of interpretation, we calculated the anti-NEP subscale with reverse scoring so that high scores correspond to a pro-NEP subscale that was used in subsequent analyses.

In studying OEVs, the ten survey statements used were reduced into three factors through Principal Components Analysis and reliability (Cronbach's α) (see Table, 3). As table 3 shows the first factor captures statements about traditional utilitarian business values, while the second factor gauges two variables relating to the voluntary or altruistic values of environmental responsibility. The third factor includes variables referring to the governmental intervention or business conformance with regulations. Consequently, we labeled them *competitive-based* (profitability-oriented) *values, altruistic-based* (voluntary) *values and legitimacy-based* (conformance) *values respectively*.

Factor analysis was also used to explore the factor structure of the EMPs, producing two reliable factor solutions with eigenvalues > 1 that accounted for 54.02% of the total variance: 41.75% and 12.26% respectively. This is acceptable if not ideal, as per Child (2006). As shown in Table 4, the items with high values in the first factor, with the exception of recycling and purchasing environmentally friendly products, correspond to environmental activities concerned with planning and organizational practices. This suggests that environmental planning and organization do not constitute an independent factor and cannot be applied in isolation of other operational practices. Furthermore, the association of recycling and purchasing items,

in particular, with those of environmental planning can be explained by the fact that waste management and suppliers' evaluation are two basic requirements for hotels' EMS standards. On the other hand, the second factor captures five variables related to water and energy conservation management suggesting that hotels might implement water and/or energy saving measures merely to control utility costs without following an EMS. Following this observation, the two factors were labeled *Environmental Planning and Organization* (EPO) and *Environmental Operations (EO)*.

Insert Tables 2, 3 and 4 about here

Table 5 shows the relationships by pairs of all eleven variables considered as controls or predictors. The Pearson test for bivariate correlations reveals a number of meaningful relationships among these predictors. Multicollinearity among factors is important, being especially among eight variables: chain affiliation, size, star rating, target markets, pro-NEP, and the three OEV factors. In order to avoid interpretation problems, the eleven predictors proceeded, therefore, into three hierarchical models. In the first model, only the control variables were entered. This was followed by the two dimensions of PEV and in the final model we added the three OEV dimensions. Given that we estimated each model for the two environmental management dimensions (dependent variables), six multiple regressions were conducted. The results from the hierarchical models are provided in Table 6.

Insert Table 5 and 6 about here

Table 6 shows that the global fit of the explanatory model (1) was statistically significant for both environmental management dimensions (EPO and EO). The

explanatory power of this model was uniformly the strongest between the three regression models, explaining 57.5% and 39.6 of variances in EPO and EO respectively, suggesting that including these predictors in the analysis was correct. Here are a number of interesting observations on the effects of these predictors.

Chain affiliation stands out as the most valuable predictor, positively and significantly affecting the implementation of environmental management practices ($P < 0.01$). This might be attributed to knowledge and experience exchange among international chain affiliates, facilitating access to more information on modern environmental measures and hence their adoption. Also, international chain hotels enjoy larger economies of scale than locally managed hotels. International chains might have the tendency to impose environmental standards and policies on their local members. Increased visibility of international hotel facilities may have also attracted institutional pressures from government agencies and stakeholders to promote significant adoption of BER practices. These findings confirm our previous research (see El Dief and Font, 2010) and are also consistent with those from Western-based studies (e.g. Alvarez Gil et al., 2001; Ayuso, 2006; Bohdanowicz, 2006; Claver-Cortes et al., 2007; Gonzalez and Leon, 2001).

Star rating and firm size explain hotels' adoption of EO practices. Larger hotels may find it makes good business sense to adopt eco-efficiency measures. The relationship between these two predictors and EPO was not significant, and the strong relationship between EPO and chain affiliation means adopting standardized EMS is more likely to be the result of being part of an international hotel chain than star rating or size. We also found a lack of knowledge about EMS and/or certification schemes in locally managed hotels, regardless of size or star rating. We interpreted this as potentially being the result of larger firms being less scrutinized for environmental

performance, given their importance for livelihoods and job creation in developing countries.

We did not find a significant relationship between the two environmental management dimensions and manager's age, manager's tenure and priority target markets (the remaining three control variables). The sample averaged 40 years old and tenure averages less than two years- more research is needed to explain why. Priority market (Western vs others) correlates with environmental proactivity (see above bivariate correlations Table 5), we believe this is due collinearity with the chain affiliation variable, and priority market could not explain a part of the variance in hotels' EMPs, which might suggest a lack of market interest.

The second model in Table 6 incorporates as independent variables both PEV dimensions identified above: NEP and LGP. Although the explanatory power of this model was weak in both dimensions of environmental management, interestingly, beta coefficients of some control variables dropped by including PEV variables. This suggests that respondents' PEV partly explain the variance that control variables could not. However, this was only significant in predicting the EO dimension, not EPO measures. A possible explanation for this is the inability of Egyptian hoteliers to act out of their prescribed tasks, due to being constrained by hierarchy in organizational structure. This is particularly the case when decision-making is characterized by a high degree of risk and uncertainty, an observation widely reported in organizational research from Egypt (e.g. Attia et al., 1999; El Dief and Font, 2010; Parnell and Hatem, 1999; Rice 2006, El-Sawah et al., 2008). The novelty of the concept to Red Sea hotels and chief engineers' short tenure means it is easier to start with financially visible measures (e.g. saving water) and then to move up towards a more structured EMS over time. It is also probable that environmental engineers have

not examined the specific requirements of such programs carefully or they have examined them but perceived EMS benefits to be low in comparison with the cost of implementation. These interpretations make sense because non-adopters are typically domestic, smaller hotels with fewer resources.

Finally, we incorporate OEV variables in the third model. The predictive power (R^2) increased significantly ($P < 0.01$) and positively in both regressions, adding 7.70% and 11.6% to the total variance explained in EPO and EO dimensions respectively. However, the values of beta coefficient indicated that EPO measures responded only to altruistic values with a confidence level of over 99%. Interestingly, the effects of the other predicting variables, with the exception of the chain affiliation variable, endured in the EPO regression. This suggests that applying EMS results from in-depth changes of values and belief systems of staff in these hotels, taking place only in the international chain hotels. This points at the potential influence of the more structured environmental training and higher communication standards available in international chains in fostering higher levels of environmental consciousness in affiliates.

We note the lack of a significant relationship between EPO and competitive-based values. This may imply that hoteliers' logic of the win-win argument of environmental management may not be valid for formally structured EMSs but only for the implementation of EO measures directed at reducing costs. Our analysis reveals that the profitability orientation was the most telling in predicting the implementation of EO measures (confidence >99%). This suggests that hotel management believing in the possibilities of environmental responsibility for profitability and/or utilitarian rather that altruistic purposes would only prefer to implement environmental measures with visible financial rewards.

Legitimacy-based values appeared irrelevant as a determinant of EMPs. This might be an indicator that the Red Sea hotel industry lacks a developed environmental policy that emphasizes the implementation and monitoring of environmental compliance, similar to those found in some of the developed countries (see: Hoffman, 1999; Marshall et al., 2005). In Egypt, environmental regulation for the hotel industry is limited to environmental impact assessment at the planning permission stage and compliance is not a challenge (Shaalan, 2005). This situation may have led many hotel managers to be apathetic towards environmental issues. Thus, coercive pressures stemming from the government as proposed by institutional theory (Hoffman, 2000; Rivera, 2004) are not important here to explain hotels' adoption of EMPs.

Conclusions

This paper contributes to the organizational greening literature by examining how personal and organizational values can influence the implementation of environmental management practices, testing a model developed out of Western literature in a developing country context. The results support the influence of organizational altruism in explaining different types of environmental management practices in the absence of external institutional pressures. Such organizational orientation is more likely in international chains where environmental programs may be standardized, environmental responsibilities are designated, environmental training is considered and environmental innovation is rewarded. This may be explained by the fact that these international chains have similar behaviors irrespective of their operational location. This can both mean that their behavior is more likely to behave as described in the Western literature, or that these hotels are more used to the rhetoric behind corporate responsibility speak- further qualitative research is needed in this respect.

The data suggests that managers' personal values and organizational competitiveness can only explain environmental management practices with more visible financial returns. The lack of formalized environmental structures and/or empowerment in local hotels appear to have established a context of "moral frustration" (Hemingway, 2005) for environmentally interested managers who may feel obliged to suppress their eco-centric beliefs and prioritize the economic interests of the hotel. The need to strengthen ethical support for environmental management in these hotels is, thus, a key. Policies and educational programs that foster the capability of hoteliers to use non-financial criteria as an element of their decision-making process may provide a contribution.

This study illustrates how coercive pressures through legislation are currently not relevant in Egypt. The study reflects fairly good intentions, at least at the individual level of managers, regarding future development of environmental sustainability as the majority of respondents expressed strong endorsement of the New Ecological Paradigm. This data set suggests that it is the lack of appropriate frameworks that stands between good intentions and actual behavior- clearly an area deserving further research attention. The novelty of the concept and the lack of knowledge, particularly in domestic firms, may make managers unaware of the potential benefits which are now well rehearsed in international hospitality firms and embedded in their corporate responsibility teams. Accordingly, policy makers need to be aware that education, training and awareness raising programs seem to be the most appropriate avenue at this stage, while management should consider the much more complex issue of staff empowerment to allow personal environmental values to permeate in the workplace. Hoteliers and more importantly investors need to be made aware of the potential competitive opportunities that they are currently missing by not engaging in proactive

environmental management practices. Since the majority of local hotels understand the eco-efficiency benefits, programs need to be more comprehensive and discuss the benefits of further issues such as Environmental Management Systems. Our ambition with this study is to have developed a transferable quantitative scale that can be replicated in other locations and longitudinally in Egypt both by ourselves and other academics, and a data set we can further interpret through qualitative research.

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Table 1: Frequency distribution for participant hotels

Hotels backgrounds	No. of participant hotels (%)	Sample frame
Star ratings		
3-Star hotels	49 (31%)	92 (34.5%)
4-Star hotels	69 (43.7%)	110 (42%)
5-Star hotels	40 (25.3%)	62 (23.5%)
Total	**158 (100%)**	**264 (100%)**
Size		
Small-sized hotels (up to 100 rooms)	19 (12%)	30 (11.6%)
Medium-sized hotels (between 100 and 300)	85 (53.8%)	140 (52.9%)
Large-sized hotels (300 rooms or more)	54 (34.2%)	94 (35.5%)
Total	**158 (100%)**	**264 (100%)**
Chain affiliation		
Independent hotels	36 (22.8%)	56 (21.2%)
Local chain hotels	50 (31.6%)	84 (31.2%)
International chain hotels	72 (45.6%)	124 (47%)
Total	**158 (100%)**	**264 (100%)**

Table 2: Means, standard deviations, percentage distributions, item-total correlations, factor loadings and Cronbach's alpha for the NEP scale items

Item [1]	Mean (sd) n=158	SD[2]	SWD	U	SWA	SA	r_{j}-i	Anti-NEP 0.847 [3]	LGP 0.61
(1) We are approaching the limit of the number of people the earth can support	3.46 (1.04)	4.40	13.90	26.60	40.50	14.60	0.218	-0.032	**0.854**
(2) The balance of the nature is strong enough to cope with the impacts of modern industrial nations	1.96 (0.72)	25.90	53.20	19.00	1.90	0.00	0.562	**-0.615**	0.080
(3) The balance of nature is very delicate and easily upset	3.78 (0.75)	0.00	5.10	25.90	54.40	14.60	0.466	**0.763**	0.071
(4) Human ingenuity will ensure that we do NOT make the earth unliveable	1.99 (0.80)	27.80	49.40	18.40	4.40	0.00	0.522	**0.676**	-0.059
(5) The earth is like a spaceship with very room and resources	3.60 (1.01)	3.80	10.80	23.40	44.90	17.10	0.246	-0.078	**0.822**
(6) The so-called "ecological crises" facing humankind has been greatly exaggerated	1.91 (1.91)	27.20	53.80	19.00	0.00	0.00	0.599	**0.663**	-0.275
(7) Plants and animals have much right as humans to exist	4.26 (0.61)	0.00	0.00	8.90	55.70	35.40	0.556	**-0.700**	0.081
(8) Humans were meant to rule over the rest of nature	1.95 (0.82)	33.50	39.90	24.10	2.50	0.00	0.585	**0.769**	-0.032
(9) If things continue on their present course we will soon experience a major ecological catastrophe	3.86 (0.79)	0.60	4.40	21.50	54.40	19.00	0.511	**-0.666**	0.059
(10) Humans will eventually learn enough about how nature works to be able to control it	1.88 (0.75)	32.90	47.50	17.70	1.90	0.00	0.564	**0.735**	0.011

[1] Agreement with the five odd-numbered items and disagreement with the five even-numbered items indicate pro-NEP responses.

[2] SA = Strongly agree, SWA= Somewhat Agree, U = Unsure, SWD = Somewhat Disagree, and SD = Strongly Disagree. [3] Loadings of 0.40 and above are in bold.

Table 3: Means, standard deviations, factor loadings and Cronbach's alpha for the OEV dimensions

Item	Mean (sd) n=158	Competitive-based values[1] α=0.645	Altruism-based values α=0.626	Legitimacy-based values α=0.60
(1) Compliance to environmental regulations is enough for hotels to be responsible	3.52 (1.24)	-0.191	-0.025	**0.817**
(2) Occupancy levels always take precedence over environmental issues when making a decision	2.84 (1.18)	**0.688**	0.126	-0.139
(3) It is better to ignore environmental issues (e.g. linen program) that could impact on guests experience as hotels are driven by market preferences	2.48 (1.26)	**0.724**	-0.043	-0.024
(4) Environmental management/ marketing in the hotel industry is a public relations invention to maintain cordial relations with stakeholders	3.11 (1.26)	**0.671**	-0.036	0.344
(5) Environmental responsiveness is the right thing to do for sustainability of hotels	3.97 (0.76)	0.011	**0.836**	-0.112
(6) Governmental intervention is what encourages hotels to be environmentally friendly	3.36 1.29	0.025	-0.092	**0.853**
(7) A hotel should wait and see what competitors are benefiting before introducing environmental strategies	2.82 (1.16)	**0.675**	-0.023	-0.055
(8) Hotels do not have the right to damage the environment just to satisfy their needs	4.01 (0.80)	0.132	**0.834**	-0.006
(9) Cost reduction drives this hotel to implement environmental initiatives	3.29 (1.11)	**0.659**	0.084	-0.130
(10) The sole function of hotel management/marketing is to fulfil owner/shareholders' interests	3.01 (1.27)	**0.758**	0.023	0.058

[1] Loadings of 0.40 and above are in bold.

Table 4: Means, standard deviations, factor loadings and Cronbach's alpha for dimensions of EMP

Item	Mean (sd) n=158	Environmental planning and organisation α=0.859	Environmental operations α=0.682
(1) The hotel quantifies environmental savings and costs in its annual budget	2.63 (1.06)	**0.693**[1]	0.371
(2) The hotel is subject to environmental audits at regular intervals	3.34 (1.08)	**0.660**	0.392
(3) The hotel rewards its employees for developing new environmental ideas	3.13 (1.25)	**0.739**	0.064
(4) The hotel conducts seminars for raising employees' environmental awareness	3.40 (1.13)	**0.682**	0.334
(5) The hotel has designated paid positions to take the responsibility of environmental issues	2.93 (1.12)	**0.800**	0.006
(6) The hotel has implemented a waste management and a recycling programme	3.58 (1.08)	**0.641**	0.189
(7) The hotel gives priority to purchasing environmentally friendly products (biodegradable, recyclable etc.)	3.62 (1.15)	**0.661**	0.328
(8) The hotel uses energy-efficient lightings and appliances in guest rooms and public areas	4.23 (0.76)	0.250	**0.721**
(9) The hotel has installed new technologies such as key card control systems in guest rooms, sensors and timers etc.	4.25 (0.81)	0.103	**0.710**
(10) The hotel has established water conserving fixtures or retrofits (e.g. tape aerators, showerheads etc.)	4.39 (0.75)	0.176	**0.760**
(11) The hotel offers multiple night guests the option of linen/towel reuse	2.69 (1.64)	0.186	**0.492**
(12) The hotel treats its wastewater and reuses it in irrigation	4.20 (0.97)	0.172	**0.710**

[1] Loadings of 0.40 and above are in bold.

Table 5: The Relationship among predictors

	1	2	3	4	5	6	7	8	9	10	11
1-Manager's tenure	1										
2-Manager's age	0.590 ***	1									
3- Priority markets	-0.144 *	-0.084	1								
4-Size	-0.027	0.038	0.069	1							
5-Star rating	-0.013	0.053	0.170 **	0.233 ***	1						
6-Chain affiliation	0.056	0.085	0.077	0.454 ***	0.465 ***	1					
7- New environmental paradigm (NEP)	-0.121	-0.131	0.14 *	0.096	0.363 ***	0.091	1				
8- Limits to growth paradigm (LGP)	0.083	0.044	-0.001	0.167 **	0.098	0.181**	0.162 **	1			
9- Competitive-based values	0.015	0.061	0.089	0.123	0.336 ***	0.101	0.125	0.134 *	1		
10- Altruistic-based values	0.021	0.039	0.26 ***	0.260 ***	0.529 ***	0.304 ***	0.344 ***	0.148 *	0.204 **	1	
11- Legitimacy-based values	0.065	0.091	-0.089	-0.081	-0.191 **	-0.027	-0.116	-0.016	-0.174 **	-0.145*	1

*** Correlation is significant at the 0.01 level (2-tailed)
** Correlation is significant at the 0.05 level (2-tailed)
* Correlation is significant at the 0.1 level (2-tailed)

Table 6[1]: Regression coefficient of model predicting environmental management practices in the sampled hotels

	Explanatory Model 1		Explanatory Model 2		Explanatory Model 3	
	Environmental Planning and Organization	Environmental Operations	Environmental Planning and Organization	Environmental Operations	Environmental Planning and Organization	Environmental Operations
	β Step1	β Step1	B Step2	β Step2	β Step3	β Step3
Constant						
Age	-0.066	0.000	-0.059	0.024	-0.064	0.003
Manager's tenure	0.061	0.060	0.057	0.050	0.035	0.045
Size	0.103*	0.170**	0.094	0.145**	0.048	0.106*
Star rating	0.068	0.201**	0.067	0.203***	0.066	0.242***
Chain affiliation	0.679***	0.411***	0.659***	0.344***	0.505***	0.175**
Western markets	0.066	0.061	0.064	0.054	0.005	0.022
NEP			0.049	0.164**	-0.005	0.152**
LGP			0.056	0.141**	0.034	0.098*
Competitive-based values					0.056	0.351***
Altruistic-based values					0.339***	0.122*
Legitimacy-based values					0.004	0.036
R^2 at each step	0.575***	0.396***	0.581	0.444***	0.658***	0.560***
ΔR^2 at each step	0.575***	0.396***	0.006	0.048***	0.077***	0.116***

Note[1]: β's are the standardized coefficients; * $P < 0.10$. **$P < 0.05$. *** $P < 0.01$.